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Utah Economic and Business Review

Volume 39
Number 11
November 1979

RECEIVED
MAR 14 1980

BEBR

college of business
bureau of economic and
business research
university of utah

Business School's Research Center Studies Impact of Intermountain Power Project*

by *R. Thayne Robson, Rodger Weaver, and Frank C. Hachman* **

What will happen to the Utah economy when the largest industrial complex ever proposed for the state is built in a sparsely populated rural area and uses coal from another rural area approximately one hundred miles distant? The project in question is the $4 billion Intermountain Power Project (IPP), a 3,000 megawatt, coal-fired electric power plant intended to provide electric power for cities in California, for publicly-owned electrical systems in Utah, and for Utah Power and Light Company. This project recently received federal approval for construction at Lynndyl, Millard County, approximately 20 miles from Delta.

For the past year, the Bureau of Economic and Business Research (BEBR) in the College of Business has been studying power plant siting in the Great Basin area of Utah (the western tier of counties) as part of a research consortium involving Utah State University, Brigham Young University and the University of Utah. One part of this study – being reported in this article -- is an assessment of the socio-economic impact of potential major power plant developments in the area. While the number of possible effects is large, BEBR efforts have concentrated on changes in population, employment and the additional private business activity and public facilities required to support the proposed project. This additional business activity includes the providing of many of the goods and services presently supplied by nearby larger communities and trade centers.

For purposes of analysis, the impact of such a plant can be considered in four interrelated categories:

1. *Power Plant Construction.* The first category is the construction phase lasting approximately nine years. Here employment begins relatively modestly but grows rapidly, ultimately peaking in the sixth year when more than 2,500 workers

*This article was originally prepared for *the Journal*, a publication of the University of Utah Graduate School of Business. A summary will appear in an upcoming issue of the *Journal*.

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will be constructing the power plant, while additional construction workers are required to build housing and other public or private facilities. (The construction manpower requirements and schedule used here are taken from *IPP Volume II: Lynndyl Alternate Site Environmental Statement*, U.S. Department of the Interior, Bureau of Land Management, 1979. The U.S. Department of Labor's "Construction Labor Demand System", provides construction phase data for a plant like IPP's with a shorter construction interval than is indicated in the *IPP Environmental Statement* and a higher peak construction force.)

2. *Operations and Maintenance.* The second phase is the operations and maintenance of the power plant, which begins when the first generating unit comes on line and continues for the life of the plant.

3. *Coal Mining and Transportation.* The third category stems from the requirements to mine and transport eight to 10 million tons of coal per year to fuel the plant. Here again, the demand for coal begins when the first unit goes on line and builds to a full scale demand when all units are in operation.

4. *Secondary Impacts.* Each of these activities will generate additional growth as all private and public sectors expand to support increases in the primary activities.

How do we arrive at reliable estimates of the effect this development will have upon population, employment and the demand for public and private facilities and services? The answer is to use the best available demographic and econometric modeling techniques. Frank C. Hachman, Boyd L. Fjeldsted and Rodger Weaver of the BEBR staff now use five different computer-based models of Utah and its counties to analyze the impacts of various projects. One of these, the UPED Model, is used to analyze the results of IPP.

The first task is to provide a baseline projection, i.e., a simulation of expected future developments *without* the project. The same model is then run again with the addition of the expected scale and timing of the IPP. The differences in outcome are measures of project impacts.

The UPED Model, developed jointly by the Bureau of Economic and Business Research and the Office of the Utah State Planning Coordinator, projects the migration consequences of excess demand or excess supply of labor in each multi-county planning district. The model not only projects totals, but it also shows distribution of the population in terms of age, sex, number of persons in the labor force, and employment by industrial sector.

The analysis presented here of the construction and operations phase measures the impact IPP will have on the Six-County Planning District consisting of Millard, Juab, Sanpete, Sevier, Piute and Wayne Counties, with impacts being concentrated in Millard and Juab. Given the present and expected future components of the area's economy, most of the labor, construction materials, machinery and equipment and capital resources will come from outside the area. As a result, the impacts outside the Six-County area may exceed those within the area. The largest sustained effect over the life of the product will result from the mining and transportation of coal. These activities, if they occur in Utah, will center in Carbon, Emery, Sanpete and/or Sevier Counties.

Construction and Operation

The results of BEBR's analysis of the impacts of plant construction and operation are as follows: The baseline projection for the Six-County area illustrates the sparsely populated rural characteristics of the region. Without the plant, the present population of about 43,500 with employment of about 17,900 can be expected to increase to 71,300 and 27,100 by 1990, and to 81,400 and 33,400 in the year 2000. With the addition of the plant, the population and employment by 1990 will increase to 73,853 and 28,230. (Corresponding magnitudes for other years are shown in Table 1.)

Table 1

SIX COUNTY AREA
POPULATION, EMPLOYMENT, AND NET MIGRATION
WITH AND WITHOUT CONSTRUCTION AND OPERATION OF IPP
(1980-1990, 1995, 2000)

Year	Projected Population		Projected Employment		Annual Net Migration		Net Migration as a Percentage of Population	
	With	Without	With	Without	With	Without	With	Without
1980	49,515	49,515	18,689	18,689				
					1,504	1,210	3.0	2.4
1981	51,997	51,765	19,692	19,574				
					1,835	1,607	3.5	3.1
1982	54,853	54,383	20,911	20,618				
					3,691	1,384	6.7	2.5
1983	59,631	56,882	22,990	21,556				
					4,456	1,777	7.5	3.1
1984	65,646	59,787	25,736	22,702				
					4,680	2,721	7.1	4.6
1985	71,609	63,626	28,210	24,197				
					992	*	1.4	*
1986	74,214	65,415	29,143	24,827				
					−186	*	−0.3	*
1987	75,644	67,128	29,504	25,432				
					−840	*	−1.1	*
1988	76,335	68,464	29,558	25,980				
					−1,887	*	−2.5	*
1989	75,849	70,114	29,135	26,597				
					−3,312	*	-4.4	*
1990	73,853	71,307	28,230	27,140				
1995	79,237	76,488	31,070	29,946	–	–	–	–
2000	83,778	81,424	34,399	33,349	–	–	–	–

*Fewer than 500 or less than 1 percent.

UTAH ECONOMIC AND BUSINESS REVIEW
(Issn 0042 - 1405) Vol. 39 No.11

Second class postage paid Salt Lake City, Utah. Issued ten times per year by the Bureau of Economic and Business Research, University of Utah, at Salt Lake City, Utah

Published 10 times per year and up to ten copies sent free on request by the Bureau of Economic and Business Research, University of Utah, Salt Lake City, Utah 84112. Additional copies available at ten cent per copy.

Of special interest are the relative magnitudes of the four categories noted above. The most dramatic effect in the five- to 10 year period results from the large labor force required to construct the power plant and provide power transmission and coal transportation.

The long-term impacts extending for the life of the plant result primarily from fuel requirements providing jobs for coal miners. Utah presently produces nearly 10 million tons of coal per year with approximately 4,300 coal miners. The IPP project, once completed and operating within normal production cycles, will itself require that magnitude of coal production, but the mining employment requirements will depend on whether it is produced with surface or underground mining techniques. In neither case will the employment be near the community of Lynndyl. The longer term effects in the Lynndyl area will result from the 630 employees required to operate and maintain the power plant.

For every worker employed in constructing or operating the power plant, additional jobs in the area will be created to provide the goods and services such as housing, education, and medical care required by workers and their families. Each job in a primary sector has a multiplier effect of creating additional jobs. The essential facts about the economic structure of the Central Utah area and its importing and exporting relationships with other regions have been incorporated into the UPED model. These assumptions in turn yield the estimate that each increment of a job in the area's economic base will generate an additional expansion in this region of .72 jobs in population-serving industries, for a total employment multiplier of 1.72.

Because the area surrounding the site where the plant is to be built is sparsely populated and rural in nature, most of the workers required to staff either the primary or secondary sectors will migrate into the region. The UPED net migration production for the construction phase and the beginning of the operations phase are set out in Table 1. In-migration is expected to peak in 1985, the year before the highest level of construction activity. Four years of net out-migration will begin in 1987 as the construction phase is completed.

Because the age and family structure of expected in-migrants are projected in the UPED model, it is possible to estimate a number of critical requirements with sufficient precision for planning purposes. Two illustrations demonstrate this process. As the number of children between 5 and 17 years of age is anticipated, the requirements for schools, classrooms, and teachers can be determined. Also, the expected age structure of the impact population permits reliable household formation and dwelling unit requirement projections (homes, apartments, mobile homes, etc.) The dwelling unit requirements impact fluctuates from 3,000 at the peak of construction activity to 803 when construction is completed. This compares to a projected demand of 20,486 dwelling units in 1986 for the region if the project does not materialize. The time paths of these requirements and the school enrollment impacts are shown by Charts 1 and 2. The critically important nature of the boom-bust construction phase is clearly displayed by the charts.

Chart 1. Projected Population and Employment With and Without Construction and Operation of IPP Six County Region

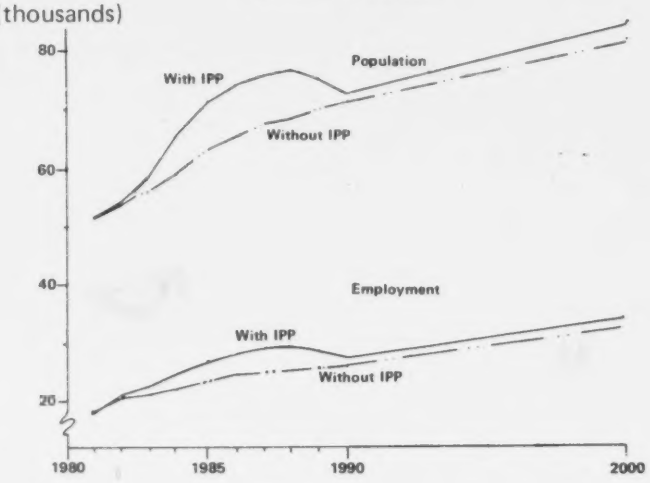
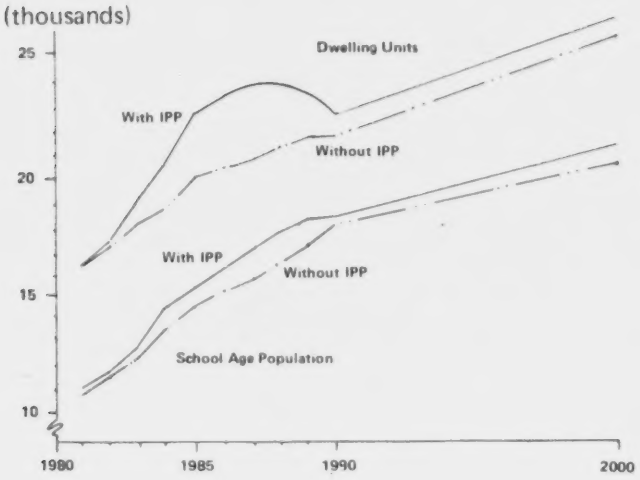


Chart 2.

Projected School Age Population and Dwelling Units With and Without Construction and Operation of IPP Six County Region



Many other impacts can be estimated with sufficient precision to guide the planning efforts of private and public agencies who must build roads, water and sewer systems, grocery stores, banks, hospitals and the entire network that constitutes a modern community.

One very critical set of choices resting uneasily on the shoulders of private and public planners concerns where required community facilities should be built. One option is to build a new town, another is to centralize population in one or a few existing communities, and still another is to encourage diffusion of growth among existing communities within a reasonable commuting radius of the power plant. But often a decision on such choices is not made carefully and deliberately The consequences are that both quality of life and economic efficiency suffer compared to the opportunities and advantages that could have been realized from the project.

In summary, the impacts of the construction and operations phases of the IPP will be enormous in terms of changes in population and employment for existing residents and for people who move into the area. The environment of the Six-County region will be greatly altered during the next 10 years – not only by IPP but by other projects such as new cement plants, electronics manufacturing and other developments which are presently planned. The MX missile system, if it is built in Utah and/or Nevada will produce impacts in the area which will dwarf those of IPP.

Coal Sources

Recent statements by IPP representatives indicate a commitment to meet the plant's approximately eight million tons per year coal requirements with coal produced in the State of Utah. If this commitment is maintained, it is most reasonable to expect such coal to be produced from a number of mines in one or more of the following counties: Carbon, Emery, Sanpete, and Sevier. Coal fields in these counties produce high quality, high Btu, low sulfur coal – and it is producible in quantities adequate to the needs of the plant. If all 10 million tons required (assuming 20 percent cleaning and shipping loss) are produced from Utah underground mines, assuming 15 tons of output per worker shift and 260 shifts per worker per year, approximately 2,100 additional coal miners will be required to produce this coal. If all coal to be delivered to IPP represents new employment opportunities, i.e., if none of this coal is diverted to IPP from other production assumed in the four county area's baseline projection, the impacts summarized in Table 2 and Charts 3 and 4 will be generated. Charts 3 and 4 and Table 2 present the same type of baseline (without IPP-related coal mining) and impact figures for the coal source area as Table 1 presents for the vicinity of the plant itself.

Probably the most important difference between the impacts imposed by the plant and those imposed

Table 2

COAL SOURCE AREA
POPULATION, EMPLOYMENT, AND NET MIGRATION
WITH AND WITHOUT COAL MINING ASSOCIATED WITH IPP
(1984-1990, 1995, 2000)

Year	Projected Population		Projected Employment		Annual Net Migration		Net Migration as a Percentage of Population	
	With	Without	With	Without	With	Without	With	Without
1984	70,828	70,828	27,596	27,956				
					2,496	759	3.5	1.1
1985	74,647	72,924	29,658	28,811				
					3,223	1,492	4.3	2.0
1986	79,335	75,735	31,394	29,617				
					1,142	*	1.4	*
1987	81,983	77,150	32,525	30,169				
					2,071	*	2.5	*
1988	85,494	78,502	34,115	30,722				
					1,634	*	1.9	*
1989	88,580	79,776	35,498	31,274				
					*	*	*	*
1990	91,129	80,988	36,175	31,824				
1995	98,025	87,279	39,175	34,577	—	—	—	—
2000	101,755	90,620	42,436	37,763	—	—	—	—

*Fewer than 500 or less than 1 percent.

Chart 3.

Projected Population and Employment
With and Without Coal Mining for IPP
Coal Source Region

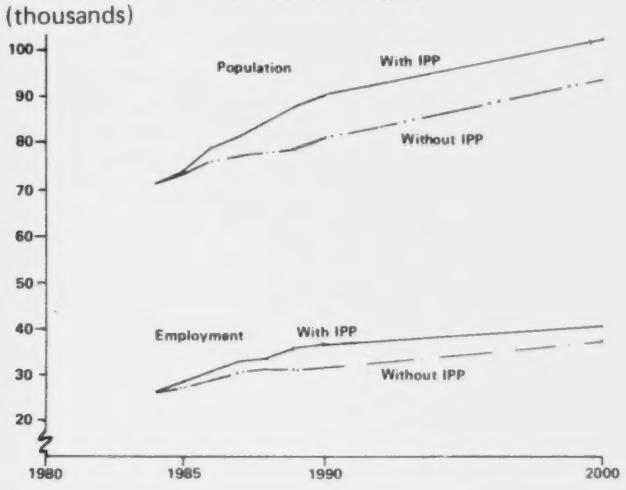
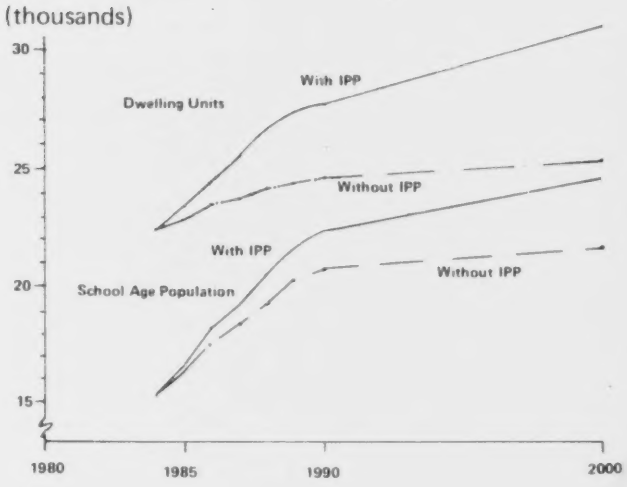


Chart 4.

Projected School Age Population and Dwelling Units
With and Without Coal Mining for IPP
Coal Source Region



by the related coal mining is the absence in the latter of the boom-bust phenomenon which is the most problematical aspect of the former. The peak-year population impact associated with the construction of the plant is 8,500 additional people in 1986 (from Table 1). The final population impact associated with coal mining, once all adjustments are made, is larger – around 11,000 – but is effectively permanent in duration. This permanence represents a real advantage in both public and private sector decision making as regards provision of such services as housing, streets and sewers, education, retail trade, financial services, etc. The advantage is that permanent facilities expansion is a relatively straightforward experience in capital theory. There will, of course, be some unusually high costs in achieving the magnitude of adjustment needed, but the process and its objectives can be determined relatively easily. In the case of the construction cycle, however, the relatively short period of high impact renders expansion of permanent facilities economically unjustified. In this case, the options such as long distance commuting, half-day and year-round scheduling of education programs, unplanned temporary housing, etc., must be considered.

An important conclusion arising from this analysis is that real costs not likely to be incorporated in the price of electricity produced by IPP are imposed by the decision to locate at Lynndyl rather than near the coal source. (The original Salt Wash proposal site is only marginally better than the Lynndyl site on items of the issue addressed here.) It is recognized that production costs, and therefore electricity prices, will be higher at the Lynndyl site.* This has been thought of as reflecting the price society is willing to pay to maintain the current high level of air quality in the scenic eastern half of the State of Utah. Since the permanent capital acquisition costs associated with coal mining expansion will have to be met regardless of plant location, and since the same facilities could be used for both construction phase-related impacts and subsequent mining-related impacts, virtually all the costs of providing for

*Utah Consortium for Energy Research and Education, *Summary Report,* Utah/Great Basin Energy Facilities Siting Study, Section III.C.

the construction force and related impacts in the Lynndyl area are also attributable to the decision to further separate the plant from its coal source. This cost is not typically recognized. Whether it would tip the balance of benefits and costs in favor of a location closer to the coal source is doubtful. Recognition is, however, essential to future plant location decisions.

Summary

Table 3 and Chart 5 summarize the impacts of the IPP project on non-metropolitan Utah. (Additional impacts in the higher order service centers of Utah and Salt Lake Counties have also been analyzed, but are of relatively minor significance in relation to the baseline levels of activity projected for these areas. They are, therefore, not discussed here.)

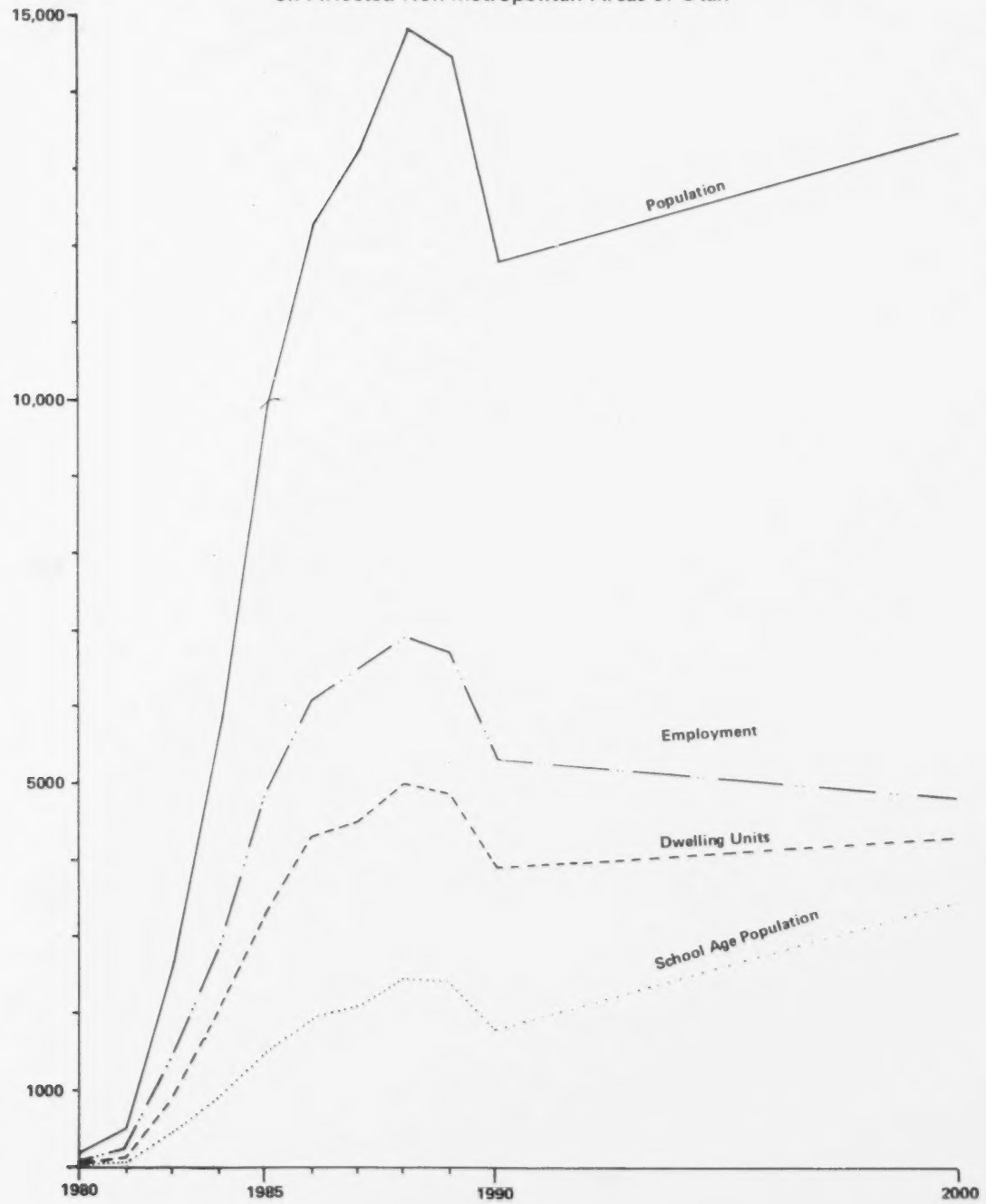
The assessment of such possible events is an ongoing and dynamic undertaking, constantly challenging the research staff. The purpose of this research is to provide information that the project managers, the state and federal governments, and the affected communities can use in their efforts to avoid costly mistakes and gain full advantage from the developments. The potential for improving decisions and avoiding mistakes is increasing dramatically as Utah and the Rocky Mountain area look forward to expanded energy and minerals development and defense activity in the decades ahead.

Table 3

INCREASES OVER BASELINE ON SELECTED VARIABLES DUE TO CONSTRUCTION AND OPERATION OF IPP AND SELECTED COAL MINING ON IMPACTED NON-METROPOLITAN AREAS OF UTAH
(1981-1990, 2000)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	2000
Population	232	470	2,793	5,852	9,706	12,399	13,349	14,862	14,539	11,687	13,489
Housing Requirements	79	159	957	2,030	3,342	4,237	4,527	5,030	4,940	3,969	4,370
School Age Population	41	81	463	903	1,522	1,947	2,112	2,421	2,400	1,885	3,493
Employment	188	239	1,434	3,033	4,887	6,093	6,428	6,971	6,761	5,380	4,723

Chart 5.
Net Impacts of Construction and Operation of IPP and Related Coal Mining
on Affected Non-Metropolitan Areas of Utah



Utah Business Statistics

Statewide Statistical Data

	Sept. 1979	August 1979	Sept. 1978	% Chg. From Year Ago	12 Mo. Average Ending Sept. 1979	Sept. 1978	% Chg.
Agriculture							
Cash Receipts from Farm Marketings (thous. of dol.)*	42,541	41,330	36,941	15.2	40,497	31,796	27.4
Livestock and Livestock Products (thous. of dol.)	29,395	32,912	27,821	5.7	30,793	24,515	25.6
Crops (thous. of dol.)	13,146	8,418	9,120	44.1	9,702	7,281	33.2
Avg. Prices Rec'd by Farmers (15th of each mo.)(dol.)							
Beef Steers and Heifers (cwt)(thou.)	70.3	61.1	55.7	26.2	66.9	46.7	43.3
Lambs (cwt)	67.4	57.3	62.2	8.4	62.1	57.2	8.6
Turkeys (per lb.)	.490	.430	.450	8.9	.500	.420	19.0
Milk, Wholesale (cwt)	11.8	11.4	10.4	13.5	11.4	9.9	15.2
Alfalfa Hay, Baled (per ton)	51.5	51.5	45.0	14.4	50.5	51.6	−2.1
Livestock Slaughtered (live weight)							
Cattle (thous. of lbs.)	14,221	15,665	18,897	−24.7	16,340	20,058	−18.5
Calves (thous. of lbs.)	4	6	16	−75.0	8	29	−72.4
Sheep and Lambs (thous. of lbs.)	191	244	215	−11.2	215	223	−3.6
Hogs and Pigs (thous. of lbs.)	2,482	2,738	2,065	20.2	2,240	1,819	23.1
Finance							
Loans, Total, Utah Member Banks (mil. of dol.)[a]	3,086	3,080	2,895	6.6	2,995	2,704	10.8
Investments, Total, Utah Member Banks (mil. of dol.)[a]	825	842	791	4.3	828	754	9.8
Deposits, Total, Utah Member Banks (mil. of dol.)[a]	3,859	3,723	3,598	7.3	3,749	3,419	9.6
Demand Deposits of Banks, Total, Utah (mil. of dol.)[a]	46	50	51	−9.8	55	53	3.0
Other Demand Deposits, Total, Utah (mil. of dol.)[a]	1,243	1,135	1,178	5.5	1,150	1,123	2.4
Time Deposits, Total, Utah (mil. of dol.)[a]	2,570	2,537	2,369	8.5	2,545	2,245	13.4
Savings, Savings and Loan Association (mil. of dol.)[b]	1,649.9	1,636.7	1,487.2	10.9	1,567.6	1,431.0	9.5
Sale of U.S. Savings Bonds—Series E & H (thous. of dol.)	1,983.0	2,000.1	2,309.6	−14.1	2,269.8	2,520.6	−10.0
New Corporations (no.)	343	408	410	−16.3	405	390	3.9
Tax Collections by the State of Utah (thous. of dol.)							
Total Tax Collections	31,425.4	136,554.1	28,328.7	10.9	69,538.1	59,815.3	16.3
Sales & Use Tax	3,032.6	79,239.7	2,924.7	3.7	29,822.0	27,784.8	7.3
Motor Fuel Tax	2,687.6	6,114.5	5,515.0	−51.3	5,223.0	4,395.8	18.8
Individual Income Tax	21,024.6	36,567.2	16,115.8	30.5	23,474.1	19,194.1	22.8
Corporation Franchise Tax	1,747.7	1,245.2	1,169.9	49.4	3,232.8	2,786.8	16.0
Employment							
Civilian Labor Force (thous.)[c]	634.9	629.7	603.1	5.3	613.4	577.1	6.3
Total Employed Persons	611.9	598.0	580.5	5.4	585.0	550.0	6.4
Unemployed	23.0	31.7	22.6	1.8	28.3	27.1	4.4
Percent Total Labor Force	3.6	5.0	3.8	−5.3	4.6	4.7	−2.1
Employees on Nonagricultural Payrolls (thous. of jobs)	570.4	556.5	539.5	5.7	548.9	515.2	6.5
Manufacturing	87.2	87.3	83.0	5.1	84.2	78.1	7.8
Mining	18.0	18.0	16.9	6.5	17.3	15.5	11.6
Contract Construction	40.1	40.4	38.1	5.2	36.6	34.6	5.8
Transportation, Communication and Utilities	35.5	35.3	33.0	7.6	33.6	31.0	8.4
Wholesale Trade	35.7	35.5	32.4	10.2	33.9	30.7	10.4
Retail Trade	100.6	99.7	97.2	3.5	99.0	87.0	13.8
Finance, Insurance and Real Estate	26.5	26.5	24.7	7.3	25.5	23.9	6.7
Services[d]	102.7	100.6	93.4	10.0	97.3	88.9	9.4
Federal Government	36.8	36.9	37.2	−1.1	37.0	37.0	0.0
State Government[e]	30.1	29.6	29.6	1.7	32.0	31.0	3.2
Local Government[e]	57.2	46.7	54.0	5.9	54.3	50.1	8.4
Average Weekly Hours							
Manufacturing	39.1	39.2	39.4	−0.8	39.1	39.7	−1.5
Mining	41.1	42.3	42.2	−2.6	41.8	42.6	−1.9
Contract Construction	38.2	36.4	38.1	0.3	37.5	40.3	−6.9
Wholesale Trade	37.7	38.0	37.9	−0.5	37.4	36.5	2.5
Retail Trade	28.4	28.9	27.6	2.9	28.1	29.0	−3.1
Amount of Unemployment Comp. (thous. of dol.)	2,495.7	3,113.9	2,381.5	4.8	3,868.3	3,163.6	22.3
Construction							
Total Construction (thous. of dol.)	92,198	113,347	128,848	−28.4	116,897	107,247	9.0
Residential	52,890	68,738	58,042	−8.9	62,166	58,292	6.6
Nonresidential	35,851	36,844	55,414	−35.3	41,102	38,447	6.9
Public Works and Utilities	3,457	7,765	15,392	−77.5	13,630	10,631	28.2
Total Permit Construction (thous. of dol.)[f]	103,097.4	136,172.4	108,779.4	−5.2	100,126.0	96,898.9	3.3
Residential	49,244.2	69,101.6	61,092.7	−19.4	56,778.7	64,315.8	−11.7
Nonresidential	43,102.7	60,928.7	42,012.3	2.6	36,648.7	26,692.7	37.3
Additions, Alterations and Repairs	10,750.5	6,142.1	5,674.4	89.5	6,418.6	5,890.4	9.0
New Dwelling Units (no.)	1,297	1,946	1,792	−27.6	1,504	1,923	−21.8
Tourism/Travel							
Air Passengers (total no. on and off)	370,384	463,036	345,302	7.3	379,472	342,928	10.7
Highway Traffic Count Across State Lines	44,933	53,766	50,216	−10.5	38,410	42,109	−8.8
Transient Room Taxes (thous. of dol.)	125.8	404.4	.9	13,877.8	180.8	149.5	20.9
Visits, State, Nat'l. Parks, Monuments (thous.)	1,368.7	1,785.6	1,458.3	−6.1	1,020.6	1,148.8	−11.2
General							
New Cars and Truck Sales	na	na	na	—	na	na	—
C.P.I. (National Index — 1967=100)	223.4	221.1	199.3	12.1	210.8	191.3	10.2
Telephones in Service. (Business)	74,653	74,312	70,986	5.2	72,804	69,051	5.4
Telephones in Service. (Residential)	402,303	395,131	384,206	4.7	392,084	372,166	5.4
Electric Customers (Commercial)	31,864	31,758	30,734	3.7	31,458	29,610	6.2
Electric Customers (Residential)	341,985	341,286	327,134	4.5	337,344	320,422	5.3
Natural Gas Customers (Residential & Commercial)	448,413	446,680	428,685	4.6	449,162	426,903	5.2
Natural Gas Customers (Industrial)	887	875	959	−7.5	917	956	−4.1
Production							
Net Electric Power Utilized (mil. of kwh)	1,030.2	972.0	871.6	18.2	901.2	878.3	2.6
Crude Oil to Refineries (thous. of bbls.)	4,807.7	4,890.4	5,219.5	−7.9	4,995.4	5,171.6	−3.4
	Aug. 1979	**July 1979**	**Aug. 1978**		**Aug. 1979**	**Aug. 1978**	
Crude Oil Production (thous. of bbls.)	2,301.3	2,206.5	2,689.0	−14.4	2,691.1	2,832.2	−5.0
Natural Gas Production (mil. of cu. ft.)	5,836.6	5,742.2	6,192.0	−5.7	6,219.1	6,627.1	−6.2
Coal (thous. short tons)	947	818	834	13.5	979	794	23.2
Copper (thous. metric tons)[g]	17,270	16,149	16,180	6.7	15,695	15,785	−0.6

Utah Business Statistics

MULTI-COUNTY PLANNING DISTRICT STATISTICAL DATA	Sept. 1979	Aug. 1979	Sept. 1978	% Chg. From Year Ago	12 Mo. Average Ending Sept. 1979	12 Mo. Average Ending Sept. 1978	% Chg.
Wasatch Front (Salt Lake, Tooele, Davis, Weber, Morgan Counties)							
Non-Ag. Employment (thous.)*	404.1	398.2	382.0	5.8	391.6	367.2	6.6
Auth. Permit Construction (mil. of dol.)	64.2	70.4	76.2	−15.7	64.0	62.1	3.1
New Dwelling Units	793	1,226	1,253	−36.7	945	1,232	−23.3
Postal Receipts (thous.)	727.4	3,822.1	3,591.5	3.8	4,430.6	3,919.9	13.0
Electric Customers (Residential)	262,020	261,717	251,310	4.3	259,075	246,630	5.0
Electric Customers (Commercial)	20,814	20,724	19,957	4.3	20,500	19,319	6.1
Natural Gas Customers (Residential)	265,659	264,293	251,669	5.6	264,849	250,583	5.7
Natural Gas Customers (Industrial)	454	448	494	−8.1	471	487	−3.3
Department Store Sales (mil. of dol.)	23,916	28,071	25,707	−7.0	25,734	25,010	2.9
Salt Lake City							
Non-Ag. Employment (Salt Lake and Tooele) (thous.)*	298.4	299.6	280.6	6.3	288.5	272.4	5.9
Auth. Permit Construction (mil. of dol.)*	15.2	10.4	11.4	33.3	11.4	7.4	54.1
New Dwelling Units	12	57	154	−92.2	52.2	77	−32.2
Postal Receipts (thous.)	3,036.6	3,136.6	2,970.6	2.2	3,613.1	2,976.0	21.4
Natural Gas Customers (Residential)	55,763	55,796	55,228	1.0	56,774	55,852	1.7
Natural Gas Customers (Industrial)	167	164	185	−9.7	176	180	−2.4
Telephones in Service. (Business)h	41,364	41,185	39,339	5.1	40,398	38,503	4.9
Telephones in Service. (Residential)h	205,945	204,240	196,308	4.9	201,337	191,419	5.2
Ogden							
Non-Ag. Employment (Weber, Morgan, Davis) (thou.)*	96.1	93.7	91.7	4.8	94.1	90.7	3.7
Auth. Permit Construction (mil. of dol.)*	9.5	6.4	3.1	206.5	6.6	3.0	120.0
New Dwelling Units	47	30	33	42.4	42	32	32.5
Postal Receipts	303.6	286.8	256.6	18.3	348.0	278.4	25.0
Natural Gas Customers (Residential)	20,911	20,855	20,663	1.2	21,208	21,034	0.8
Natural Gas Customers (Industrial)	60	60	65	−7.7	62	69	−9.9
Telephones in Service. (Business)i	6,921	6,854	6,536	5.9	6,733	6,410	5.0
Telephones in Service. (Residential)i	42,099	41,843	40,930	2.9	41,485	40,039	3.6
Mountainland (Utah, Wasatch, Summit Counties)							
Non-Ag. Employment (thous.)*	73.2	67.1	68.6	6.7	69.6	65.0	7.1
Auth. Permit Construction (mil. of dol.)	23.0	31.4	16.0	43.8	19.2	17.5	9.7
New Dwelling Units	236	398	244	−3.3	295	373	−21.0
Postal Receipts (thous.)	509.6	522.3	454.1	12.2	580.5	478.2	21.4
Electric Customers (Residential)	31,746	31,473	30,024	5.7	30,991	29,026	6.8
Electric Customers (Commercial)	2,935	2,914	2,746	6.9	2,872	2,666	7.8
Natural Gas Customers (Residential)	55,479	55,303	52,234	6.2	55,339	51,822	6.8
Natural Gas Customers (Industrial)	90	92	98	−8.2	95	98	−3.2
Provo							
Non-Ag. Employment (thous.) (Utah Co.)*	67.6	62.1	63.5	6.5	64.3	59.8	7.5
Auth. Permit Construction (mil. of dol.)*	2.7	2.1	3.8	−28.9	4.7	3.0	56.7
New Dwelling Units	51	34	56	−8.9	70	71	−1.1
Postal Receipts (thous.)	270.0	270.7	252.8	6.8	320.8	250.2	28.2
Natural Gas Customers (Residential)	14,505	14,645	13,773	5.3	14,583	13,931	4.7
Natural Gas Customers (Industrial)	43	43	47	−8.5	46	47	−1.9
Telephones in Service. (Business)i	6,181	6,152	6,166	0.2	6,066	5,886	3.1
Telephones in Service. (Residential)i	38,823	36,605	37,167	4.5	36,539	34,472	6.0
Central Utah (Juab, Millard, Sanpete, Sevier, Piute, Wayne Counties)							
Non-Ag. Employment (thous.)*	13.4	13.0	12.8	4.7	12.9	11.9	8.4
Auth. Permit Construction (mil. of dol.)	2.0	3.1	2.8	−28.6	2.2	2.2	0.0
New Dwelling Units	36	57	41	−12.2	42.3	44	−3.9
Postal Receipts (thous.)	64.1	60.9	55.4	15.7	70.5	62.0	13.8
Electric Customers (Residential)	8,798	8,762	8,434	4.3	8,619	8,251	4.5
Electric Customers (Commercial)	1,889	1,881	1,917	−1.5	1,906	1,857	2.6
Uintah Basin (Duchesne, Daggett, Uintah Counties)							
Non-Ag. Employment (thous.)*	12.0	11.8	11.3	6.2	11.2	10.2	8.8
Auth. Permit Construction (mil. of dol.)	2.8	11.5	4.3	−34.9	3.1	2.0	55.0
New Dwelling Units	40	28	30	33.3	32	33	−0.3
Postal Receipts (thous.)	42.8	43.1	40.5	5.7	47.8	41.1	16.3
Electric Customers (Residential)	4,770	4,725	4,201	13.5	4,634	4,316	7.4
Electric Customers (Commercial)	747	750	706	5.8	746	709	5.2
Natural Gas Customers (Residential)	5,060	4,981	5,038	0.4	5,144	5,021	2.4
Natural Gas Customers (Industrial)	8	7	8	0.0	8	9	−11.1
Bear River (Box Elder, Cache, Rich Counties)							
Non-Ag. Employment (thous.)*	31.2	29.9	29.7	5.1	30.3	28.7	5.6
Auth. Permit Construction (mil. of dol.)	3.9	7.1	4.2	−7.1	3.8	5.6	−32.1
New Dwelling Units	45	87	94	−52.1	65	92	−29.6
Postal Receipts (thous.)	151.6	187.3	147.3	2.9	204.1	155.7	31.1
Electric Customers (Residential)	13,851	13,831	13,299	4.2	13,615	13,081	4.1
Electric Customers (Commercial)	1,698	1,708	1,658	2.4	1,683	1,623	3.7
Natural Gas Customers (Residential)	23,050	22,864	22,304	3.3	23,202	22,375	3.7
Natural Gas Customers (Industrial)	50	48	50	0.0	48	48	0.0
Southeastern (Carbon, Emery, Grand, San Juan Counties)							
Non-Ag. Employment (thous.)*	20.4	20.2	19.2	6.3	19.4	17.5	10.9
Auth. Permit Construction (mil. of dol.)	2.2	8.5	1.7	29.4	3.1	3.5	−11.4
New Dwelling Units	35	57	35	0.0	31.4	49.9	−37.1
Postal Receipts (thous.)	na	na	na	—	na	na	—
Electric Customers (Residential)	10,557	10,524	10,129	4.2	10,402	9,799	6.2
Electric Customers (Commercial)	1,395	1,390	1,346	3.6	1,383	1,301	6.3
Natural Gas Customers (Residential)	7,986	7,944	7,776	2.7	8,064	7,825	3.0
Natural Gas Customers (Industrial)	15	13	12	25.0	12	12	2.5
Southwestern (Beaver, Iron, Washington, Garfield, Kane Counties)							
Non-Ag. Employment (thous.)*	16.8	16.6	15.9	5.7	15.9	14.9	6.7
Auth. Permit Construction (mil. of dol.)	5.0	4.1	3.6	38.9	4.9	4.2	16.7
New Dwelling Units	112	93	95	17.9	89.4	102	−12.4
Postal Receipts (thous.)	84.7	91.7	76.9	10.1	97.4	70.9	37.4
Electric Customers (Residential)	10,243	10,254	9,737	5.2	10,012	9,317	7.5
Electric Customers (Commercial)	2,386	2,391	2,404	−0.7	2,365	2,153	9.8

BUSINESS STATISTICS
Sources and Footnotes

Sources:

Agriculture farm marketings, livestock slaughter, farm prices: U.S. Department of Agriculture
Loans, Investments, deposits: Federal Reserve reports
Savings, Savings and Loan Association: Utah savings and loan institutions
U.S. Savings Bonds: U.S. Treasury Department
New Corporations: Utah Secretary of State
Tax Collections: Utah State Tax Commission
Employment data: Utah Department of Employment Security
Construction: Dodge Construction Statistics and BEBR
Air Passengers: Salt Lake International Airport, statistics service
Traffic Count: Utah Department of Transportation, Travel Analysis Unit
Visits to State and National Parks and Monuments: U.S. Forest Service; Utah State Parks and Recreation Department
Truck and car sales: Utah Automobile Dealers Registrations Service Company
Telephone, electric, natural gas customers: cooperating Utah utility companies
Net Electric Power Utilized: cooperating Utah power companies
Crude Oil to Refineries: cooperating Utah oil refineries
Copper production: U.S. Bureau of Mines
Coal production: U.S. Department of Energy
Oil and gas production: State of Utah Division of Oil, Gas and Mining

Footnotes:

* May not add to total due to rounding
[a] End of Period, includes member banks of Federal Reserve System
[b] As of the close of business on last day of the month
[c] Current year–preliminary data; previous year–final figures.
[d] Includes nonprofit and religious
[e] Includes public schools and colleges
[f] Total new construction plus additions, alterations and repairs
[g] Beginning January 1979, data reported in metric tons; to convert metric tons to short tons, multiply by 1.10231
[h] Includes Salt Lake County and Bountiful
[i] Includes Weber and Morgan Counties
[j] Includes Orem and Springville
r revised
x increase from zero or decrease to zero
na not available

UTAH ECONOMIC AND BUSINESS REVIEW Vol. 39 No.11

UTAH ECONOMIC AND BUSINESS REVIEW
BUREAU OF ECONOMIC AND BUSINESS RESEARCH
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